# "Sun On—Lights Off" Renewables & Energy Efficiency

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E-Vision 2002: Shaping Our Future By Reducing Energy Intensity In the U.S. Economy

May 16, 2002—Session 9B Electric Power

Arlington, Virginia

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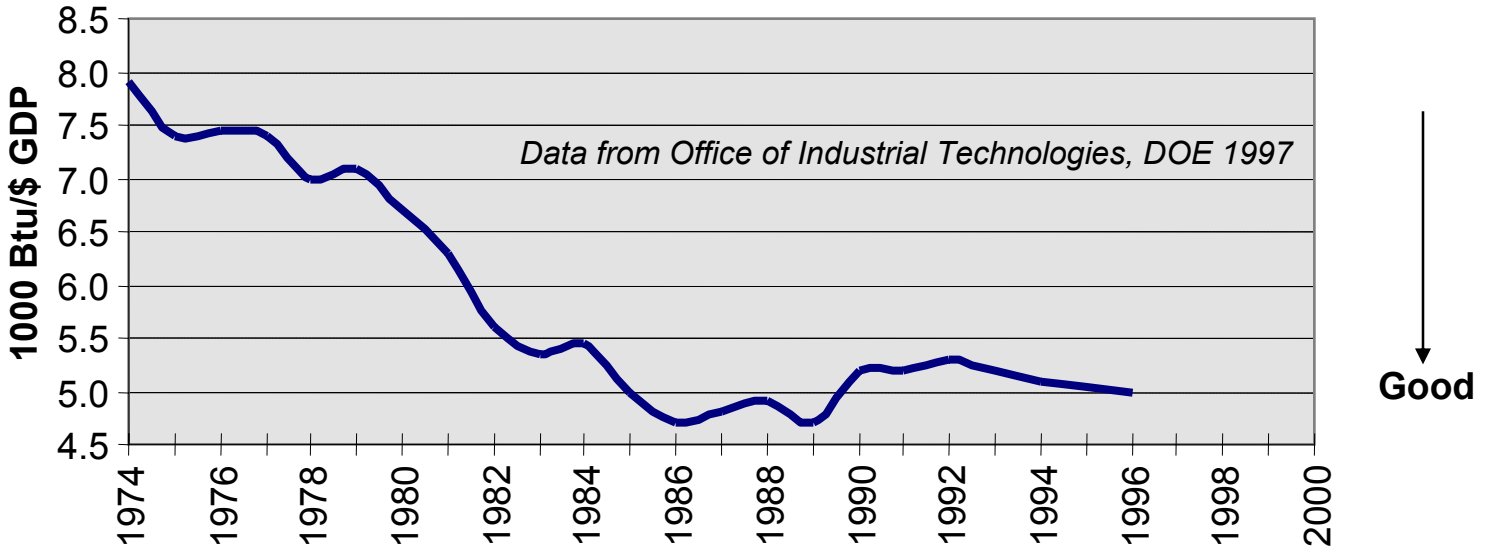
# Conference Purpose

"Identify R&D and Market Changes Needed to Help Reduce Energy Intensity (BTU/$GDP) in the U.S."

**National Energy Efficiency Gains Have Slowed in the Industrial Sector**




# TVA's Role

- Largest Public Power Entity, Federal Utility, Regional Development Agency
- TVA Act
  - Production of reliable, low cost power
  - Environmental stewardship
  - Support economic development
- Science and Technology
  - Help consumers realize full benefits
  - Scientific input for good public policy
  - Technology to implement public policy
- TVA's 30 years of history with renewables and energy efficiency

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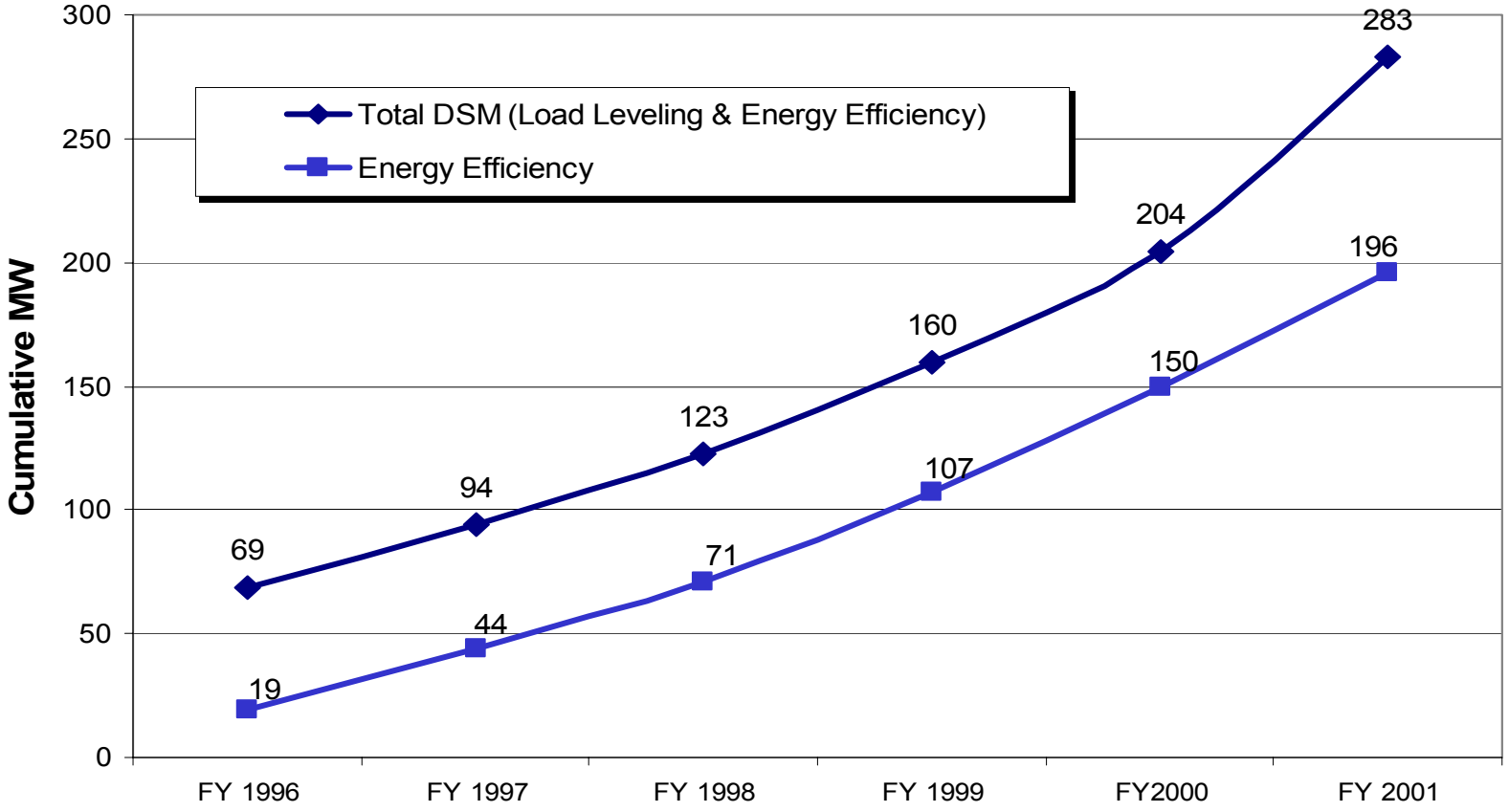
# TVA Peak Load Reductions

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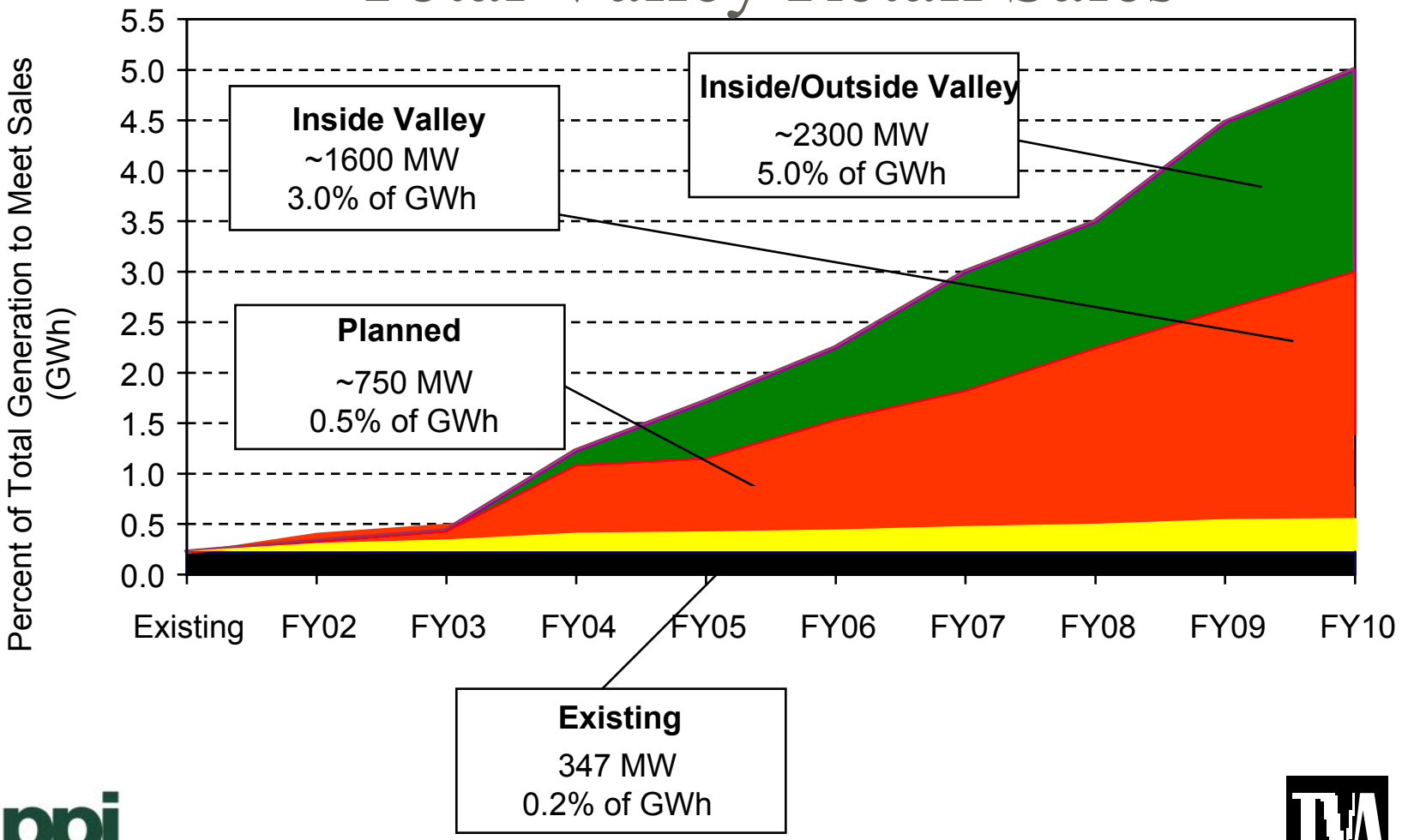
# Potential Renewable Energy Supply – Total Valley Retail Sales

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# “EE” & “RE”: Two Silos

**Energy Efficiency**


- Since 1996 196 MW EE Reduction
- $15-$20 million/yr
- Energy Right®
- EPA Energy Star® Designations
- In Concert With the Environment Education

**Renewable Energy**




- 2002 – 347 MW of Renewables
- Green Power Switch®—10th in the U.S.
- Sunny© Education
- Largest SE Wind “Garden”
- Largest SE Solar Installation

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# Its Not Enough

**Energy Efficiency**

**Peak Energy Increased 1000MW**
(1999-2000)

- 50-100 MW/year Reduction
- Cost @ $1700-1800 kW(1)

**Renewable Energy**

**.2% Towards Proposed 10% RPS** (2)
(2002)

- 3% Uses Indigenous Regional Supply
- Cost @ $1200-1300/kW(3)

(1) Composite of lowest 250 MW
(2) Based on Total Valley Retail
(3)Composite of lowest renewable mix which includes wind, nominal solar and outside purchases for 5% goal

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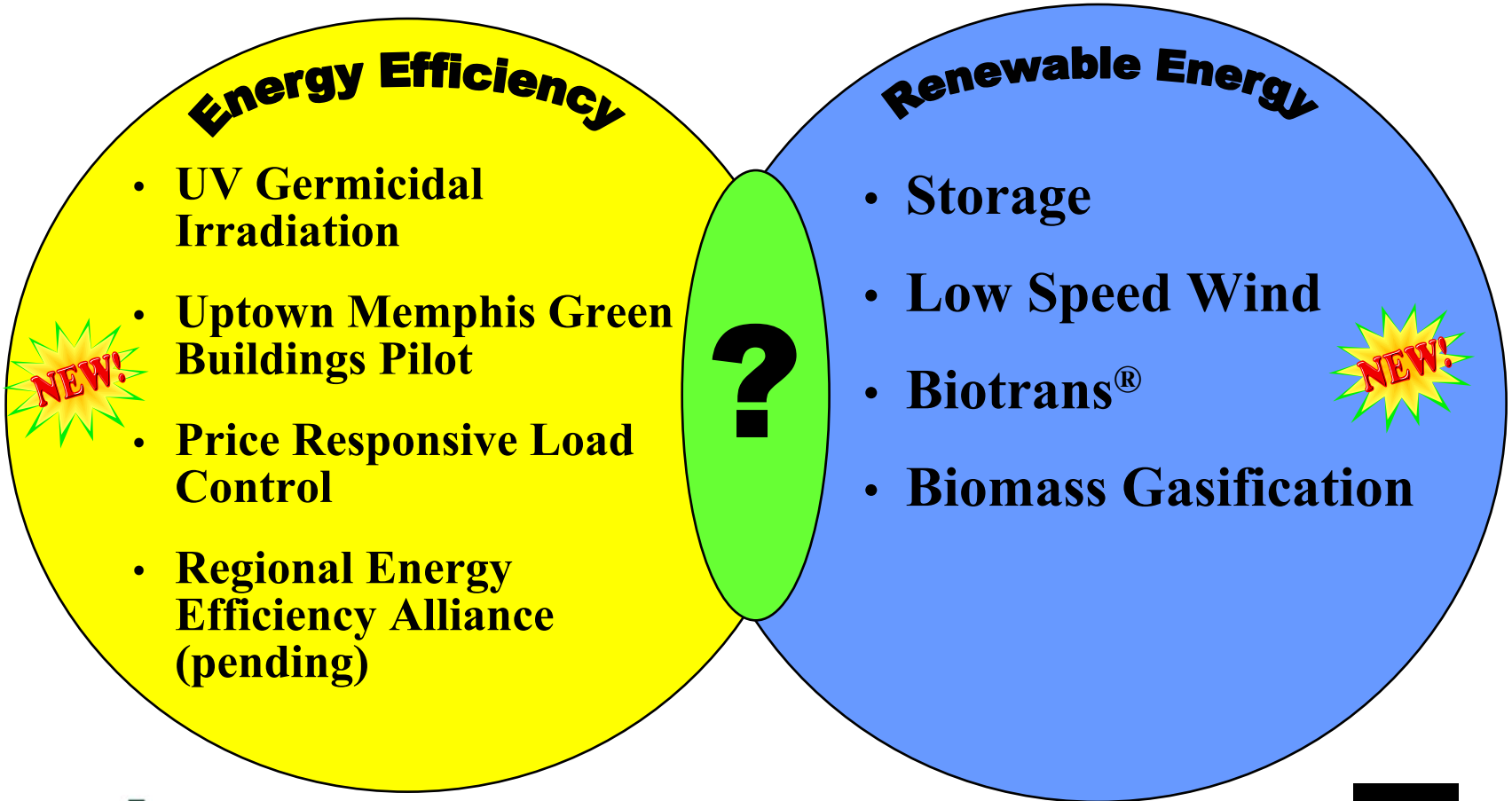
# Still Separate Initiatives . . .



# . . . And, Yet, Some Integration

**Energy Efficiency** **AND** **Renewable Energy**

- Geothermal Heat Pumps—100 schools, $40K/yr/per school savings
- Hybrid Lighting (w/ORNL)
- Advanced Hot Water Heater (w/Park Service)
- Recycled Fly Ash Concrete (Habitat for Humanity)
- Integrated PV With Roof/Shading
- Renewable Buy-Back Program (pending)
- Green Pricing and Home Improvement Stores (piloting)
- "Co"-Education

NEW!

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# Gaps -Technology & The Market

**Technology Gaps**

- Dispatchability
- …Cost
- Efficiency improvements
- …Cost
- Hybrids
- …Cost
- Performance improvements

**Market Gaps**

- Value proposition is financial
- Public awareness & education
- Economies of scale/limited availability
- Split incentives
- Renewables are regionally based
- The public adoption chasm
- Lower competitive cost of new generation

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# Innovation

"If there's a solution . . . find it."

**Thomas Edison**

**For more information:**

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